

ABSTRACT

A system for separating a multi phase mixture into a
5 first liquid phase component, a second liquid phase component
and a solid phase component includes a three phase centrifuge
and a control system for the centrifuge. The control system
includes a fuzzy soft sensor programmed with fuzzy logic
rules and a feed forward controller in signal communication
10 with the fuzzy soft sensor. The feed forward controller is
configured to adjust a feed rate and a feed temperature of
the mixture based on the rules, the cold feed temperature,
the percent change of water in the mixture, and the percent
change of solids in the mixture. The system also includes a
15 feedback controller configured to adjust the feed rate and
the feed temperature of the mixture based on the rules, and
the basic water and solid (BS&W) content of the first liquid
phase component.